



WRF's wind power ensembles for a wind farm located in a coastal area of Turkey

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Short-term wind forecasts are obtained for a wind farm located in a coastal area of Turkey. The simulated month is March when the plant is under strong south-westerly gusts. We performed multi-scale simulations using WRF's different Planetary Boundary Layer (PBL) parameterizations as well as Large Eddy Simulation (LES). WRF ensembles with different PBL parameterizations showed little spread for wind speed forecasts. LES models improved the forecasts. Statistical error analysis is performed and ramp events are analyzed. Model forecasts for ramps in general were poor. Complex topography of the study area also affects PBL and LES parameterizations' performance, especially the accuracy of wind forecasts were poor in late afternoons.